

# CPOL (SR2) SIGMET RCP-8 Operator Guide

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## **SR2 TRUCK NOTES:**

- The truck weighs 12 tons.
- Truck is 13' 4" tall. Driver and scouts should always be looking out for low clearances.
- The air brake pressure should be over 60 PSI. If it is not when you start the truck there is loud beeping noise. After ~1 minute the pressure equilibrates and beeping stops.
- Drive the truck in "D" which is gear 5 and use lower gears for down steep and/or long hills. When parking the truck do the following 1) Leave it in neutral; and 2) Engage the air brake (large yellow button on center of dash)
- Note: The tire pressure is written on the tires.
- Contact Darrel at OU Fleet services for any truck questions/issues.

## **POWER INVERTER (for mobile operations, e.g., V-2)**

- Plug internet in motion and laptops into the power strip at the top of the back of the rack. This power strip is connected to the truck battery. Note the plugs face in so you can't see them from back of the rack.
- Then plug this power strip cord into the yellow inverter while the truck engine is on and plug it into the black power strip in the front of the rack when the generator is on.

## **POWER INVERTER (for fixed-site operations, e.g., Debris Flow)**

- Plug internet in motion and laptops into the power strip on the rack below the monitor. This power strip is connected to the generator power.

## **GPS**

- When you have time, use the handheld GPS to get correct time, latitude, longitude, altitude, and heading.
- Compare the handheld readings to the automatic readings in the RVP8 computer. Make sure you record any discrepancies in the data log.

## Radar STARTUP and System Initialization

- 1) Unstow the antenna/pedestal
  - a) Use the wrench located in the passenger side front door pocket to unloosen the bolt on the restraining rods. You may not need the wrench.
  - b) Pull out wire pin and pull out thick pin. If strap is tight, rotate red bar until thick pin comes out easily.
  - c) Lower the rods and replace the pins.

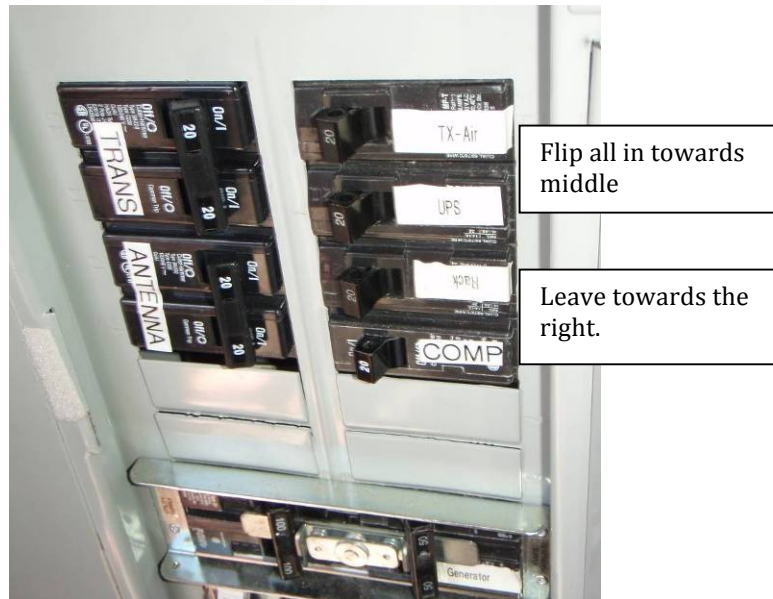


- 2) Start the diesel generator.
  - a) Unlock (hint old address)
  - b) Turn the key to the right (clockwise).
  - c) When meters stabilize at nominal values, flip the left circuit switch on to turn on the power breakers in the generator cabinet.

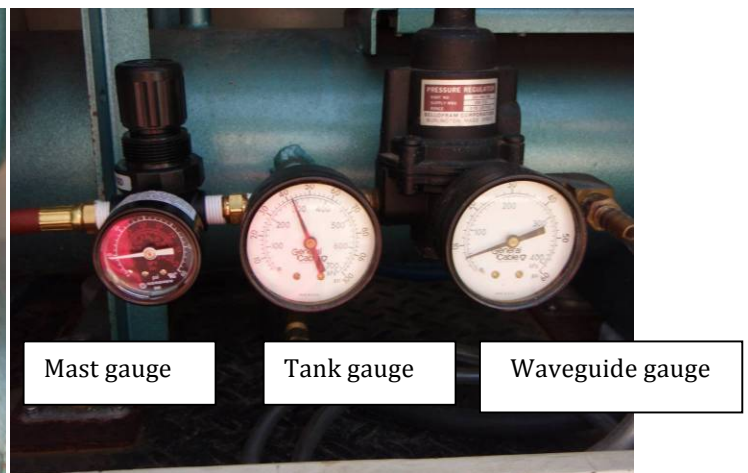
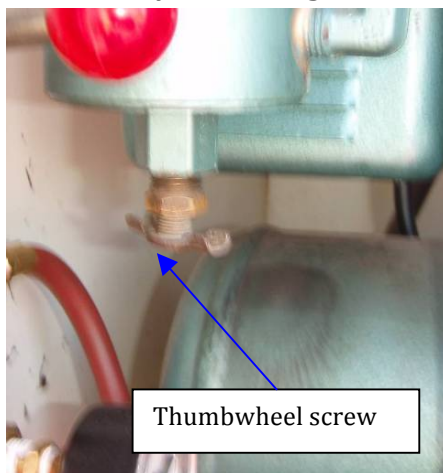


- 3) Turn on the breakers.
  - a) Move the rear operator seat forward (lever below cushion).

- b) Turn on breakers, they should point toward the middle of the unit and toward each other. *Don't touch the lower breaker; it should stay to the right for generator power.*

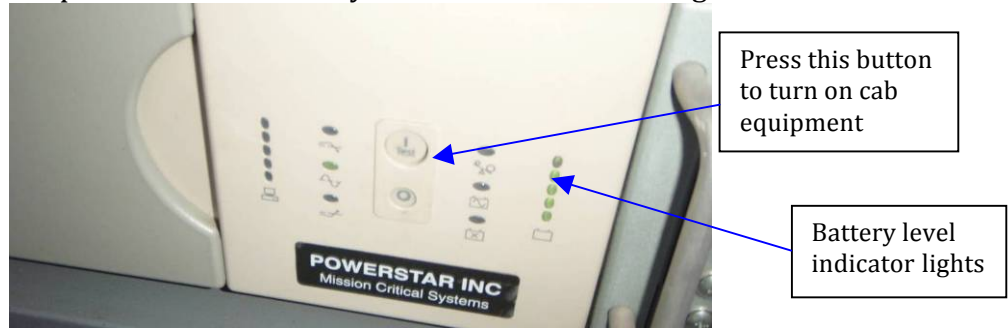


- 4) Remove any condensed moisture from the compressor. Note: Compressor does not start until breakers are on.
- Open the air compressor compartment next to the generator cabinet
  - Turn the thumbwheel screw to the *right/clockwise* to open (screw direction is reversed from normal)
  - Wait for a minute or so to allow air to blow out any condensed moisture from the compressor lines.
  - When moisture stops dripping from the exhaust, close the thumbwheel screw. Do not over-tighten the screw. When valve is shut, waveguide pressure should start slowly increasing.



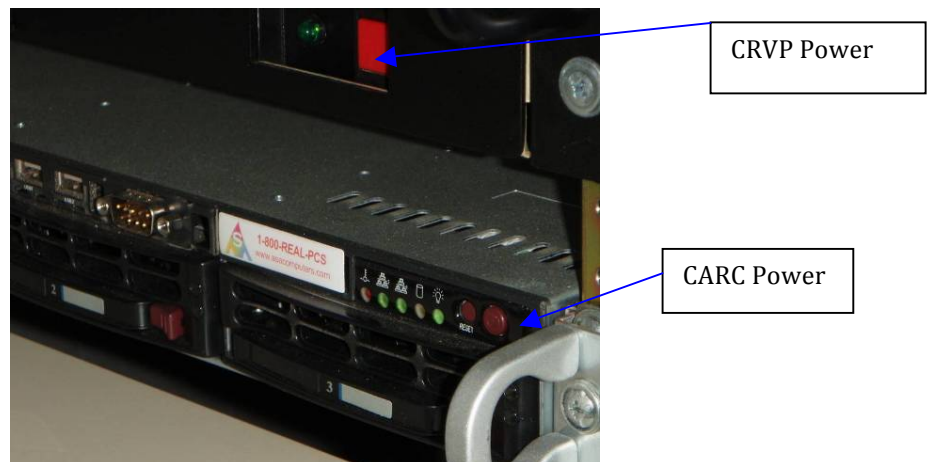
- 5) Turn on the UPS (underneath the table) by pressing the (upper) big round button. If the UPS beeps or clicks after it is turned on it may be running on battery, check the

breakers. On the back of the inverter there is a small LED, it indicates the sensitivity: High = brightest, Medium and Low = dimmest. It should always be on Low. Use a pen to press in the button if you need to switch settings.



6) Power up the computers.

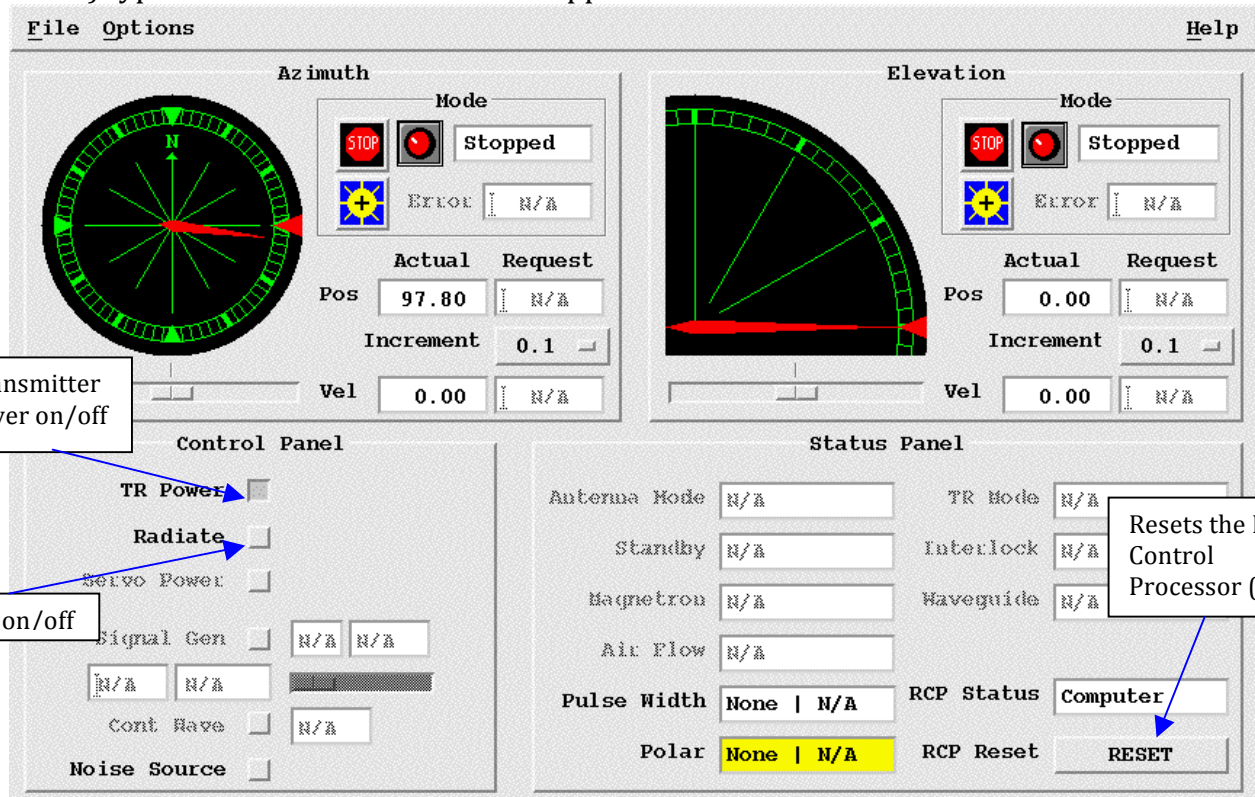
- a) Turn on RVP-8 unit. This should start the SIGMET computer, called "CRVP", boot process.
- b) Turn on the archive computer, called "CARC". Note: both machines use the same monitor, mouse and keyboard. The KVM switch (behind the driver's seat on top of rack, behind monitor) controls which computer, (1) is the CRVP machine and (2) is the CARC machine. Press the button below the number that you want to choose. The green light indicates which one is active.



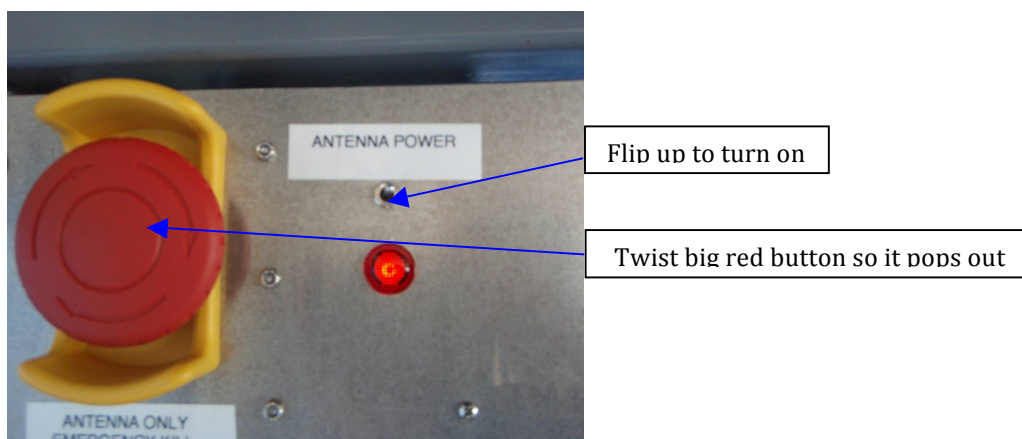
- For the rest of the steps, you type the **blue** text into the terminal window and you click on buttons that are labeled with the **blue** text



- 7) After the computer boots login with '**operator**' and password '**xxxxxxx**' (6 lower case x's). **NOTE: siris starts automatically!**
- 8) Open a terminal window by right clicking and selecting terminal window
- 9) Minimize the "big iris" windows. You don't need them right now
- 10) Type "**antenna &**". The GUI that appears will be referred to as the "*Antenna GUI*":

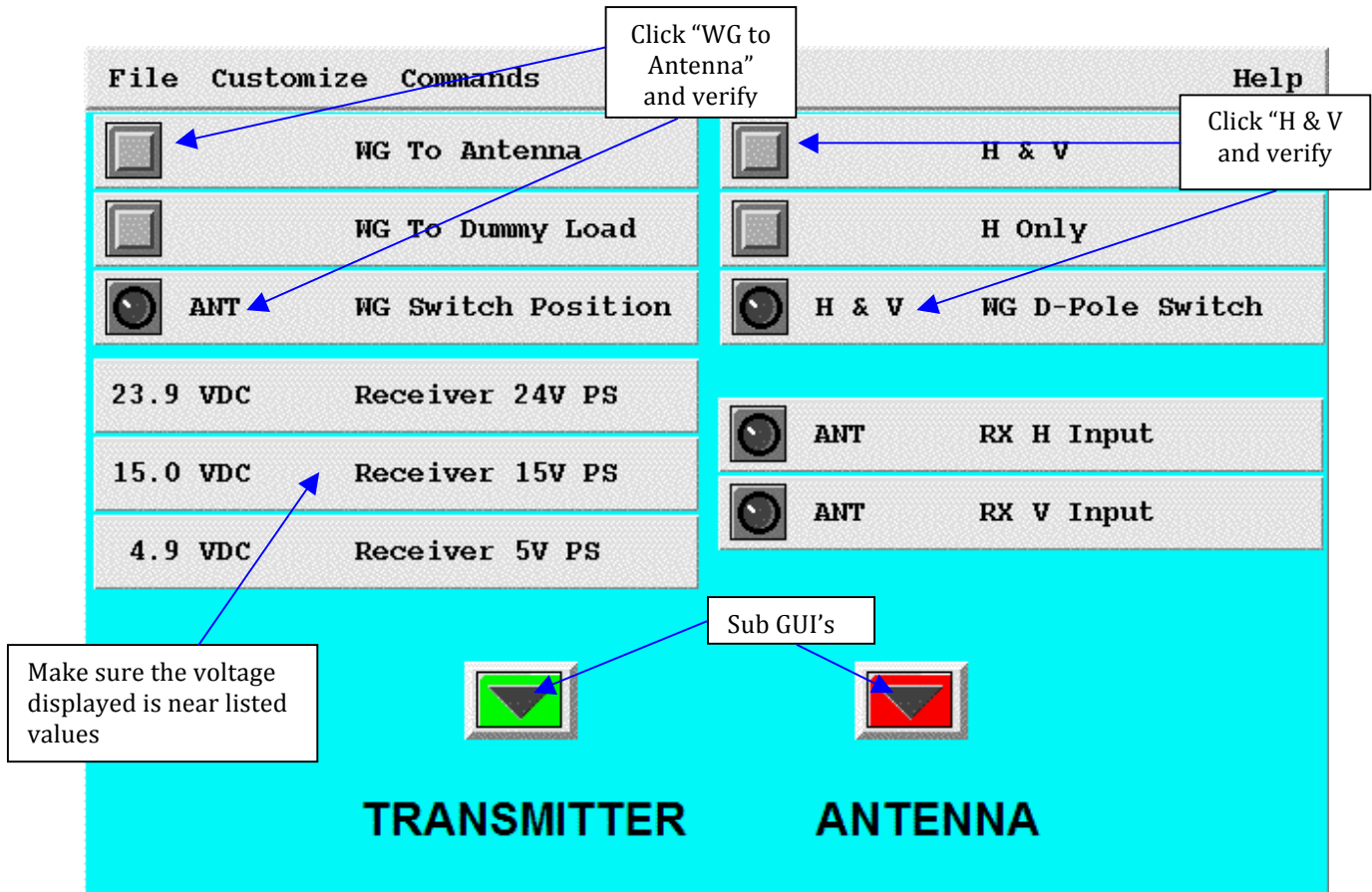


- 11) Click on **TR Power**. This turns on the transmitter. It takes a while (can be ~15 minutes) for the transmitter to warm up, depending on environmental conditions.
- 12) Turn on the antenna pedestal power by moving rocker switch up. Red button is out.



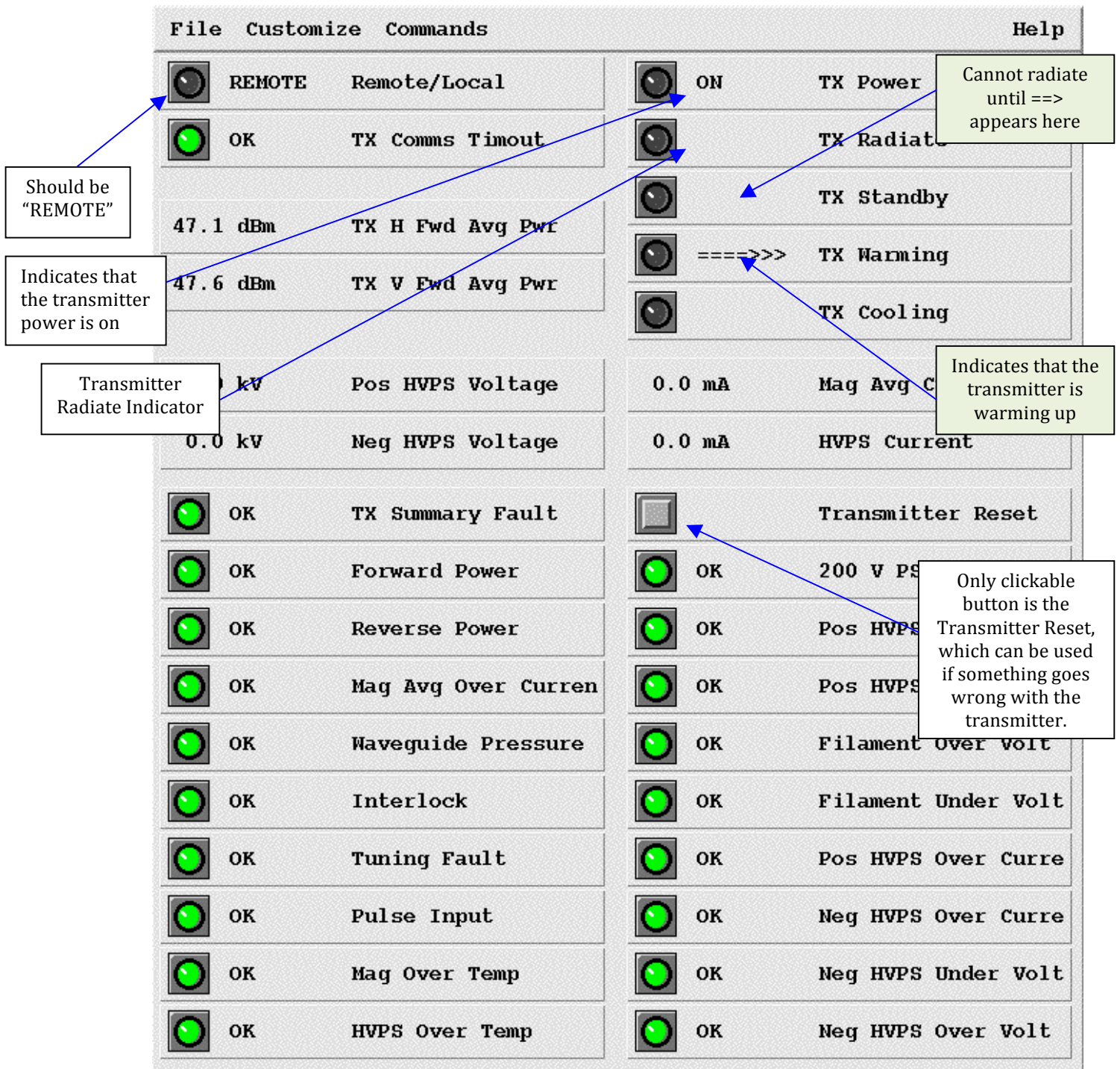
13) Type "**bitex &**" in the terminal window.

- The following GUI window will appear.
- Make sure the power is going from waveguide to antenna (ANT in display box).
- Make sure H&V are selected



14) Open the transmitter GUI by clicking on **TRANSMITTER** in the *bitex* GUI.

- The following window will appear.
- On the top right the first line should show that the transmitter power is on.
- There should be "===>" in front of "**Tx Warming**" when the transmitter is first turned on. You cannot start radiating until "===>" is in front of "**Tx Standby**". **Be patient!!** It could take ~20 minutes for the transmitter to warm up on a cold day!
- The rest of the icons should be green and say "OK".



15) Open the bitex antenna GUI by clicking on **antenna** in the bitex GUI (it's a red icon).  
The following window should appear:



The screenshot shows a software window with a menu bar (File, Customize, Commands, Help) and a main control area. On the left, there are several buttons: 'Enable Drives', 'Disable Drives', 'Home Antenna', 'Stow Antenna', 'Lock pos/hdg', 'Hdg from file', and 'Set system time'. On the right, there are status indicators (green/red lights) and numerical data fields for 'Pedestal Connected', 'Pedestal Enabled', 'AZ Drive', 'EL Drive', 'AZ Homed', 'EL Homed', 'Stowing Antenna', 'Latitude (dec deg)', 'Longitude (dec deg)', 'Heading', 'Compass', 'Declina', and 'GPS Time'. Blue arrows point from callout boxes to specific elements: 'Enable Drive button' points to the 'Enable Drives' button; 'Lock Heading button' points to the 'Lock pos/hdg' button; 'Sync system time to GPS button' points to the 'Set system time' button; a box points to the 'Hdg from file' button with the text 'Use the file "hdg.txt" to define truck heading'; another box points to the 'Heading' field with the text 'Make sure these numbers look correct Lat: 34.200610 Lon: -118.350563 HD: 191°'; and a final box points to the 'Latitude' and 'Longitude' fields.

Enable Drive button

Lock Heading button

Sync system time to GPS button

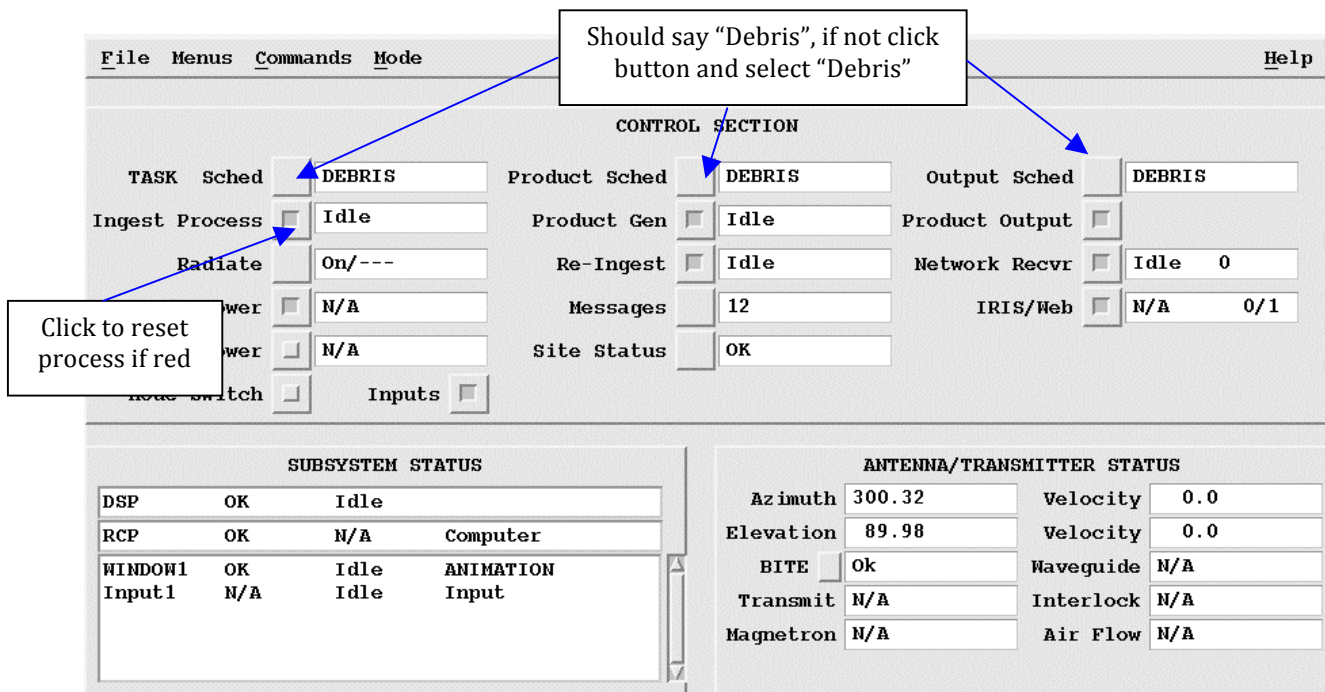
Use the file "hdg.txt" to define truck heading

Make sure these numbers look correct  
Lat: 34.200610  
Lon: -118.350563  
HD: 191°

- Click the **"Lock pos/hdg"** button – this "Locks" the latitude, longitude, and heading and keeps them from drifting during data gathering.
- Do not believe the "Heading" value on the right side. Instead, walk the GPS toward the back of the truck and read that heading from the GPS unit. (Only if the truck has been moved since the last operation).
- Edit `hdg.txt` file in the terminal window and set the home directory, e.g., (`$cd; $vi hdg.txt`) and enter the GPS heading into this file
- Click the **"Hdg from file"** button.
- Turn on power to the antenna using the toggle switch (physical switch on top left next to emergency stop button). The red light should turn on.
- Click **Enable Drives**. This energizes the antenna motors. The AZ drive and EL drive lights should turn green.
- Click **Home Antenna**. This moves the antenna to its "home" position. Sometimes this drives the antenna to a negative elevation angle. If the limit switch is hit the drive buttons will turn red and it will be necessary to "disable" and the "enable" drives again and use the antenna GUI to move the antenna up.



- h) Check the boxes in the lower right (those without buttons) to see if the Latitude, Longitude, Heading, and GPS Time seem OK. If they look squirrely go to the antenna GUI and push the “**RCP Reset**” button
  - i) Click “**Set system time**” to synchronize the computer’s time with GPS
- 16) In a terminal window type “**iris &**”
- 17) When the iris GUI opens click “**connect**”, then click **CPOL** from the drop down.
- 18) In the IRIS title bar click “**Menus**” and select “**Radar Status**”. The following window should appear. If the “**Ingest Process**” shows a red background: “**Stopped**” click the button to change to “**Init**”, then to “**Idle**”
- 19) Close the “Radar Status” box (click on “**File**” and select “**Close**”)



- 20) Bring up the *bitex* window and see if the “**TX Standby**” box says “**==>**”. Then bring up the antenna GUI and click the “**Radiate**” button. In the *bitex* window see if the “**TX Radiate**” box says, “**YES**”. If the “**TX Radiate**” goes back to “**Off**” or if any of the “**Power**” indicators turn red turns **red**, click on the “**Transmitter Reset**” button. If not successful, you may need to reboot and start over. Reboot by typing “**Reboot**” in a terminal window and supplying the root password (“**nsslsig8**”)

## RADAR DATA ACQUISITION

- 1) In the IRIS title bar select “**Menus**” and select: “**TSC Scheduler**”
- 2) Start the “**VCP-12**” scan by right clicking on its “**Idle**” and selecting “**Go (ASAP)**”
- 3) Bring up the real-time display from the IRIS title bar “**Menus: Real Time Display**”. It’s the bottom item in the list. You should see the sweep line going around and the reflectivity echoes (if any) on the display. Note that the ground clutter suppression

is turned on, so don't be surprised not to see any ground return when the field displayed is "DBZ". Other fields that can be displayed by clicking on the button next to the field name: DBT – *Raw Reflectivity (i.e., no clutter canceller)*; V – *Radial velocity*; W – *Spectral Width* and any of the dual-pol parameters.

- 4) After a volume scan or two completes, verify that the products are being written to disk by bringing the terminal window to the front and typing:

```
$cd /usr/iris_data/product_raw
```

```
$ls
```

The directory list should grow with each completed volume scan. The date/time is encoded in the file name, (e.g., SR21060114173000, which is SR2yymmddhhnnss).

## PRODUCT CONFIGURATION

- Any task that runs will create "ingest" files in /usr/iris\_data/ingest, but to create product files (e.g., raw sigmet data files or PPI files) a product needs to be configured and scheduled.
- 1) For a new task, start with "**Menus -> Task Configuration**" to set up the new task.
    - a) "**File -> Open**" to start with an existing similar task, if desired
    - b) Modify task settings as needed (e.g., sector/full, azimuth range, elevation angles, data moments, etc.)
    - c) "**File -> Save As**" -- give new name for new task (11 char limit?)
  - 2) A task needs to be scheduled and started running before a product can be configured, so go to "**Menus -> Task Scheduler**" to add the new task and start it running. Once through is enough.
    - a) Add task in scheduler by right clicking in the "**Task**" column, select "**Add**" from the pop-up menu and select the task name (there is a limit of 8 tasks in the scheduler).
    - b) To run, left-click on the task to highlight, then right-click on "**Idle**" and select "**GO (ASAP)**" and the task should start.
    - c) To Stop the task right click on in the "**Run**" and select "**Stop (When Done)**"
    - d) Be sure to save the task schedule with "**File -> Save As**"
  - 3) Once the task has run at least once, a product can be configured. At least a raw product must be set up to save the data in binary "SIGMET" format.
    - a) Select "**Menu -> Product Configuration**"
    - b) Select "**Type -> Raw**"
    - c) Click on box next to "**TASK NAME**" and select the task from the pop-up menu.
    - d) Select "**File -> Save As**" and enter a name for the product (e.g. "TASK\_RAW" (11 character limit))
  - 4) Schedule the new product
    - a) Select "**Menus -> Product Scheduler**"

- b) Click on the line that says "RAW --Products--" to highlight it
- c) Right-click on it and select product name from the pop-up menu. (e.g., "TASK\_RAW")
- d) Right click on "Stop" in the "Rqst" column and select "All" from the pop-up.
- e) Go back to "Menu -> Task Scheduler" and start the task running
- f) Go back to "Menu -> Product Scheduler" and watch the "Runs" columns to make sure that it increments as sweeps/volumes complete. (You can also check in the directory /usr/iris\_data/product\_raw for new files appearing.)
- g) **Save the product schedule** with "File -> Save As" (You can give a new name besides DEFAULT for the schedule for your project, too, but be sure that it opens automatically the next time the system is started up.)

PPI products can be created, too, for playback in the iris software. In the product configuration, select "Type -> PPI" and select which variable (dBZ, Vr, Zdr, etc.) to output (each variable needs a separate PPI product). Then "File->Save As" and give name (e.g., "TASK\_DBZ"). Same procedure as RAW for product scheduler except in the PPI section.



These are the radar task configuration set up parameters for the Debris Flow VCP-12 scan. To edit the scan parameters, click on the “**VCP-12**” task and select “**Edit**” to bring up the task configuration editor:

The critical parameters are the Data Quality Thresholds at the bottom. Don't change the other parameters. The 14 Elevation Steps mimic the NWS VCP-12 volume scan. This task should take ~4 min 45 seconds to complete. The repeat time is set for 5 min. The tilts are: 0.5°, 0.9°, 1.3°, 1.8°, 2.4°, 3.1°, 4.0°, 5.1°, 6.4°, 8.0°, 10.0°, 12.5°, 15.6°, 19.5°.

## Other Notes:

- There is no cab transmitter cutout!
- Only use the emergency stop (big red button) if you need to stop moving the dish in an emergency. Otherwise it should not be pressed in, which means you are able to twist it slightly.
- The antenna can range from  $-0.5^{\circ}$  to  $90^{\circ}$  in elevation.
- On average the radiated power is 160 watts. The transmitter can actually put out 300 kW peak, but is reduced due to the lousy rotary joint we are using.
- If there is a missing burst pulse warning, it means that the transmitter was not radiating.
- When programming tasks, the azimuth angle moves clockwise to start, moves to increasing angles (lower to higher).

## LEVEL TRUCK

- Always verify that people/obstructions are clear before moving the outriggers.
  - The black USB cord that connects to the white serial cord is for the leveling. It should be in the right front (closest to user) usb port. See Leveling Instructions
- 1) With truck engine idle, turn on the PTO and Panel power switches located on the hydraulic control panel.
  - 2) Extend the rear outriggers outwards.



Note: The lights labeled out indicate that the rear outriggers are NOT stowed.

- 3) Place the metal plates beneath each leveler feet.



- 4) Lower all four leveling feet so that they just touch the ground.
- 5) Make sure the black usb cord that connects to the white serial cord is connected to the laptop. It should be in the right front (closest to user) usb port. *The UPS must be on for the leveling sensor to work.*
  - a) Log into the laptop using password: “**sr1,sr2**”
  - b) Start the leveling program on laptop. It is called “**Inclination Monitor**”.
  - c) Click on “**Sensor Type**”, and click on “**NS-XX/DMG2**” from the dropdown menu.
  - d) Select com port, should be port 5.
  - e) Click “**Connect**”
  - f) Click “**Start Measuring**” on the bottom left.
  - g) You should see a graph with a red dot. The object is to get the red dot as close as possible to the origin (middle) of the graph. You can also use the readouts for left to right and back to front angles to get them as close to 0.00° as possible.
  - h) Raise and lower the various leveling feet to get the truck as level as possible using the leveler GUI. Try to keep the truck as low as possible. See below for more details.
  - i) Turn off the PTO and Panel power then turn off the truck engine and disconnect the laptop when done.

### Tips on how to level the truck:

- Raise and lower the legs in pairs. Adjust the front, or the back, or the left side, or the right side. (Order depends on the slope of the site.)
- When truck is off the ground, do not move the legs one at a time or in diagonal pairs. This twists the bed. There is one exception. You might have to move one leg a small amount ( $\sim 0.2^\circ$ ) when making a final adjustment.
- In the Leveler display, the red dot indicates vertical, and the grid origin indicates the centerline of the pedestal. Adjust the legs until the red dot is at the origin. For example, if the red dot is below the origin, the pedestal centerline is forward of vertical. That means the truck is pitched forward (the usual case). In that case you



want to raise the front of the truck, by lowering the front legs, by moving the knobs down. Remember to operate the legs in pairs. When you move the front or back legs, red dot will move up or down (truck pitch is changing). When you move the legs on one side, red dot will move left or right (truck is rolling). Dot should not move diagonally. Keep in mind that the rear legs take longer to respond because they are farther from the hydraulic pump.

- When adjusting, look for opportunities to lower an end or side from time to time, i.e. adjust the legs upward a bit. The natural tendency is to keep on raising the truck until it is level. This often results in all wheels leaving the ground. You should end up with at least one wheel still on the ground, preferably two or three. Putting the full weight of the truck on the legs strains the truck frame, and makes it harder to climb into the cab.
- During operations, check the legs for oil leaks from time to time. Look at the truck bed, it should be flat and level, not twisted. Check the leveler display from time to time and make sure the truck is not sliding or sinking, especially in high winds or heavy rain.

## SHUTDOWN

- 1) Idle the "VCP\_12" task in the TASK SCHEDULER MENU by issuing a "**STOP (When Done)**" by right clicking on its "Running" item. Once the task is idle, close the TASK SCHEDULER and REAL-TIME DISPLAY windows.
- 2) Archive all acquired data to your laptop.
- 3) Quit IRIS by clicking on "Exit" in the IRIS title bar.
- 4) In the antenna GUI turn off "**Radiate**". In the *bitex* antenna GIU the ==> should move to "TX cooling".
- 5) In the *bitex* window click "**Stow Antenna**" and "**Disable Drives**" buttons
- 6) Turn off Pedestal Power with the switch on the left hand side of the rack
- 7) In the antenna GUI *after a 5-minute "cool-down" period* click the "**TR Power**" button to turn off the transmitter
- 8) Close all active windows.
- 9) Quit IRIS by clicking on "**Exit**" in the IRIS title bar; then type: **\$qiris**
- 10) *Poweroff the CARC computer* first, then shutdown the CRVP computer.
  - a) Type in a terminal window: **\$shutdown -h now** or **\$poweroff**
  - b) *Shutdown the CRVP computer:* **\$shutdown -h now** or **\$poweroff**
- 11) Power down the UPS with the small button
- 12) Turn off the diesel generator and lock the 3 SR1 doors and the generator compartment

## INTERNET Communications to/from SR2

To establish an internet connection to the outside world SR2 uses *Internet\_In\_Motion*. *Internet\_In\_Motion* uses cell phone connectivity ("3G" network) through Sprint or other cell-phone providers. Transmit bandwidths are about 10 Mbytes per minute of upload speed. *Internet\_In\_Motion* is always on when the generator is running assuming the power supplies are plugged into the power strip that is mounted on the right side of the equipment rack. All internet addresses are assigned via DHCP so the order of power-on should be the CRVP machine, the CARC machine, then laptops via the wireless network "SR2-wireless". This order is necessary to allow the correct IP addresses.

## LINUX Computer Named "CARC" Operating Instructions

The LINUX computer mounted in the left hand side of the rack below the RVP-8 in the rear cab archives the raw files (machine name: *CARC*) and relays the SIGMET raw volumes to the OU web server in Norman. The Norman server (machine name: *smartr.metr.ou.edu*) generates images using visky and acts as a local data manager (LDM) server for other machines that want to access the data. After the SIGMET machine (CRVP) has booted then boot the CARC computer. The LinkSys router (or *Internet\_In\_Motion*) manages the SR2 network consisting of the CRVP computer, *CARC*, MotoSat, and additional wireless clients (laptops), if any.

- 1) Log onto "CARC" as "operator" - Password: "xxxxxxx"
- 2) Start a terminal (if necessary) with menu "Applications->System Tools->Terminal"
- 3) Check the date & time:
  - a) Switch to root by `$su` (password: "nsslsg8")
  - b) Set the clock to match the SIGMET computer (if necessary) by `$date mmddhhnnyyyy`
  - c) Exit root by typing: `$exit`.
- 4) Confirm that CARC has mounted the RVP-8's data drive.:
  - a) At the command line, type: `$df -h`
  - b) The output should include a line like:  
`192.168.1.2:/usr/iris_data/product_raw`  
`58G 1.4G 54G 3% /dl/rvp8/iris_data/product_raw`
  - c) This indicates that directory `/usr/iris_data/product_raw` on the RVP-8 (a.k.a. CRVP) is mounted in CARC's filesystem as `/dl/rvp8/iris_data/product_raw`.
  - d) To further confirm a proper mount, toggle the display "input" button and go back to the SIGMET (CRVP) computer display. In a terminal, enter: `$ls /usr/iris_data/product_raw`. If IRIS is running and generating volumes, you should see a list of those raw volumes.
  - e) Toggle the screen back to CARC and enter: `$ls /dl/rvp8/iris_data/product_raw`. You should see the same list of

volumes. If `/usr/iris_data/product_raw` on the RVP-8 has volumes, but `/d1/rvp8/iris_data/product_raw` on CARC is empty, something is wrong (see below)

- f) One of *CARC* jobs is to copy Sigmet raw product volumes from the RVP-8 file system to a local directory. From time to time, you should confirm that CARC is copying volumes from the SIGMET to its local file system, by comparing `/d1/local/iris_data/product_raw` to `/usr/iris_data/product_raw` on CRVP. CARC might not have the latest file because the update script runs every 21 seconds. If the latest volume has not transferred, wait a minute and run `ls` again. If a lot of volumes are missing, something went wrong (see below).
- g) The transfer process on CARC, named *pull\_sigmet*, also makes a log entry when it updates its local directory. You should check this log from time to time like so: `$tail -f /home/operator/log/pull_sigmet.out`
- h) It should indicate an update every 21 seconds. If a new Sigmet volume appears, it should indicate that it is copying the volume to the local directory. Go Control-C to terminate the tail process.
- i) CARC's other job is to transfer Sigmet raw product volumes to the web server, *smartr.metr.ou.edu*, via the *Internet\_In\_Motion*. The *push\_www* process does this. It also logs its transfers. Check the log like so: `$tail -f /home/operator/log/push_www.out`. It should show an update every 11 seconds.
- j) You should also occasionally log into *smartr.metr.ou.edu* and ensure volumes are arriving. To log in from CARC, first type: `$. ./libexec/smartr_key` That will set the SSH keys for log in without passwords. Then type: `$smartr` which should take you straight to a shell on *smartr.metr.ou.edu*. Volumes accumulate on the web server in `/data/smartr1/iris_data/product_raw`. Confirm this like so: `$ls /data/smartr2/iris_data/product_raw` or `$ls /data/smartr2/iris_data/product_raw | tail`
- k) The volume list should resemble that in `/d1/local/iris_data/product_raw` on CARC. It might be a volume behind, depending on when the update scripts last ran and how fast the connection is. Also note that the transfer script only looks back three volumes. If there has been a long network interruption (i.e., > 15 minutes), there will be a gap. The transfer process will not try to fill it (which would take forever), it will just resume the real time feed. If a lot of current volumes are missing, something went wrong (see below).
- l) *smartr.metr.ou.edu* will read the raw volumes and generate a current image loop at `http://smartr.metr.ou.edu/~smartr2/`. Visit the page, from anywhere on the internet, and confirm that the loop is updating.

m) If the transmission bogs down you can restart it with the commands:  
`$stop_sigmet_vol_imgs.sh` and `$run_sigmet_vol_imgs.sh`



## IF SOMETHING WENT WRONG

If *CARC* is not receiving volumes from the SIGMET computer, check the in-truck network connection. Go to System->Administration->Network on *CARC*. Make sure eth1 is up. If not, click "activate." If it fails to activate, check the cable that connects the RVP-8 to *CARC*. It is in the back of the rack. There should be an ethernet cable running from the back of the RVP-8 to the back of *CARC*. *CARC* has four ethernet jacks in a row. The SIGMET should be plugged into eth1, which is the one furthest left (towards the front of the truck). If you have to re-activate eth1, you will probably have to re-mount the sigmet directory on *CARC*. To do this, go to a terminal window, log in as root, and issue the mount command like so:

```
$ /bin/su -l Password: ("nsslsg8")
$ mount /iris_data/product_raw
```

Verify the mount with df and ls. The update scripts should pick up where they left off.

If *CARC* is not sending volumes to the web server, check the network connection. Make sure it is plugged in. There should be two power bricks plugged into the power strip on the right hand side of the rack. The power strip should be on. The Netgear router (i.e. *Internet\_In\_Motion*) behind the display should be plugged in and lit. Also check the network cable that connects *CARC* to the Netgear router. It is in the back of the rack. There should be an ethernet cable running from the Netgear router to the back of *CARC*. The Netgear router should be plugged into eth3, which is third from the left. When you are satisfied that everything is connected and powered up, go to System->Administration->Network on *CARC*. Make sure eth3 is up. eth3 is the interface for the Internet in Motion system. If eth3 is down, click "activate." The update scripts should pick up where they left off.

## Archiving RAW SIGMET files to a PowerBook

All SIGMET raw files are copied and archived to the *CARC* computer as they are created. The files are archived in the directory: /d1/local/iris\_data/product\_raw. You can copy files from there, as you cannot easily access the CRVP computer. Active the wireless system on the laptop and connect to the "**SR2-wireless**" network. Use "DHCP" to assign the IP address. Do this after the CRVP and *CARC* computers have booted.

To copy files from the *CARC* computer:

- 1) Start a terminal window ("Applications/Utilities/Terminal" on the mac PowerBook)
- 2) Create a directory where you want the data to be (e.g., "`mkdir data/SR2`")
- 3) Go to that directory (e.g., "`cd data/SR2`")
- 4) Type "`rsync -av`  
[operator@192.168.2.4:/d1/local/iris\\_data/product\\_raw/SR2091201\\*.RAW\\*](#) ." to copy files created from December 1st, for example. Its best to use a wild card notation on the date to get just the files created during your operation and not all the past IOPs. What's neat about rsync is that you can re-run this command many times and only the new files will be copied.

- 5) That last period is important. When asked for a password, type "xxxxxxx"
- 6) To get a directory listing of "/d1/local/iris\_data/product\_raw/" on the *CARC* machine you need to log into it:
  - a) Open a terminal window on the mac
  - b) Log into *CARC* with the command "`ssh -X operator@192.168.2.4`"
  - c) type the password "xxxxxxx"
  - d) Do a directory list: "`ls "/d1/local/iris_data/product_raw/`

The archive directory on the *CARC* machine will generally hold ALL of the raw files from the project.

### **DO NOT DELETE FILES FROM THE ARCHIVE DIRECTORY!!!!!!**

If you have problems connecting between machines check the IP addresses. Its possible that DHCP could assign IPs that are different than listed below:

Machine	IP	Login	Password	Root PW
CRVP	192.168.1.2	operator	xxxxxxx	nsslsig8
CARC	192.168.2.4	operator	xxxxxxx	nsslsig8
laptop	192.168.2.3	-	-	-
Level laptop	192.168.2.2	-	-	-

### **To Log into CARC from laptop:**

- 1) `ssh -X operator@192.168.2.4`
- 2) password "xxxxxxx"

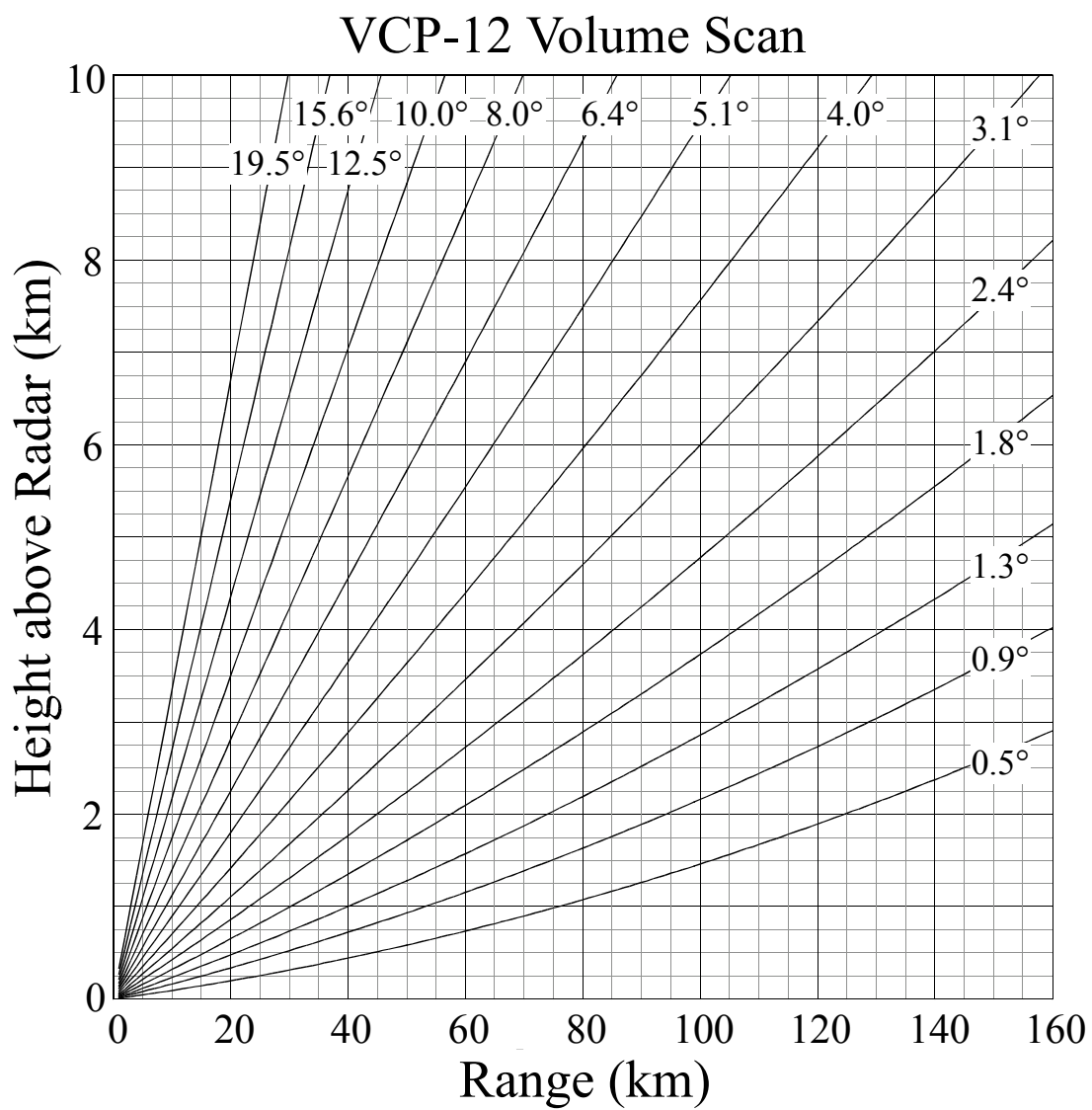
### **To Log into CRVP:**

- 1) Log into CARC
- 2) `ssh -X 192.168.1.2`

**Quick dBZ to rainfall rate (mm/hr) conversion using  $Z=300R^{1.4}$  and  $Z=200R^{1.6}$**

dBZ	$Z=300R^{1.4}$ mm/hr	$Z=300R^{1.4}$ in/hr	$Z=200R^{1.60}$ mm/hr	$Z=200R^{1.60}$ in/hr
10.0	0.1	0.00	0.2	0.01
15.0	0.2	0.01	0.3	0.01
20.0	0.5	0.02	0.6	0.03
21.0	0.5	0.02	0.7	0.03
22.0	0.6	0.02	0.9	0.03
23.0	0.7	0.03	1.0	0.04
24.0	0.9	0.03	1.2	0.05
25.0	1.0	0.04	1.3	0.05
26.0	1.2	0.05	1.5	0.06
27.0	1.4	0.06	1.8	0.07
28.0	1.7	0.07	2.1	0.08
29.0	2.0	0.08	2.4	0.09
30.0	2.4	0.09	2.7	0.11
31.0	2.8	0.11	3.2	0.12
32.0	3.3	0.13	3.6	0.14
33.0	3.9	0.15	4.2	0.17
34.0	4.6	0.18	4.9	0.19
35.0	5.4	0.21	5.6	0.22
36.0	6.3	0.25	6.5	0.26
37.0	7.5	0.29	7.5	0.29
38.0	8.8	0.35	8.6	0.34
39.0	10.4	0.41	10.0	0.39
40.0	12.2	0.48	11.5	0.45
41.0	14.4	0.57	13.3	0.52
42.0	17.0	0.67	15.4	0.61
43.0	20.0	0.79	17.8	0.70
44.0	23.6	0.93	20.5	0.81
45.0	27.9	1.10	23.7	0.93
46.0	32.8	1.29	27.3	1.08
47.0	38.7	1.52	31.6	1.24
48.0	45.6	1.80	36.5	1.44
49.0	53.8	2.12	42.1	1.66
50.0	63.4	2.50	48.6	1.91
51.0	74.7	2.94	56.2	2.21
52.0	88.1	3.47	64.8	2.55
53.0	103.8	4.09	74.9	2.95
54.0	122.4	4.82	86.5	3.40
55.0	144.3	5.68	99.9	3.93
56.0	170.1	6.70	115.3	4.54
57.0	200.5	7.89	133.2	5.24
58.0	236.3	9.30	153.8	6.05
59.0	278.6	10.97	177.6	6.99
60.0	328.4	12.93	205.0	8.07





## Contact List

<i><b>Name</b></i>	<i><b>Org</b></i>	<i><b>Role</b></i>	<i><b>Cell Phone</b></i>	<i><b>Office Phone</b></i>	<i><b>email</b></i>
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To report problems with the property or gate call:

BUR Comm. Center: (818) 840-9536

The Operations Supervisor is manned 24 hrs.